

### AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for measurement of high temperatures of a process stream, the method comprising the steps of: by means of  
providing a thermocouple arranged in a thermowell, wherein the thermowell is at least partly covered by a layer of a catalytic material being active in at least one endothermic catalyzing steam reforming reaction; and  
contacting the thermowell with a process stream during the endothermic catalyzing steam reforming reaction, to carry out the temperature measurement.
2. (Currently amended) ~~Method~~ The method according to claim 1, wherein a tip of the thermowell is covered by the catalytic material with a layer thickness of 0.2-5 mm, ~~preferably 0.5-2.0 mm.~~
3. (Currently amended) ~~Method~~ The method according to claim 1, wherein the thermowell is installed in a reactor wall by inserting the thermowell through a hole penetrating the reactor wall so that the tip of the thermowell is in contact with the process stream.
4. (Currently amended) ~~Method~~ The method according to claim 3, wherein the tip of the thermowell is 20-50 mm behind an inner surface of the reactor wall.
5. (Currently amended) ~~Method~~ The method according to claim 1, wherein the ~~temperature is measured in a~~ process stream ~~undergoing a~~ undergoes the steam reforming reaction in a catalytic bed.

6. (Currently amended) ~~Method~~ The method according to claim 5, wherein the temperature is measured upstream of the catalyst bed.

7. (Currently amended) ~~Method~~ The method according to claim 5, wherein the steam reforming reaction is carried out in an autothermal reformer.

8. (Canceled)

9. (Currently amended) ~~Method~~ The method according to claim 1, wherein the measured process stream has a temperature of 1000-1500° C.

10. (Currently amended) A temperature measurement instrument comprising a thermocouple inserted in a thermowell, wherein the thermowell is being at least partly covered by a layer of a catalytic material being active in at least one endothermic catalyzing steam reforming reaction.

11. (New) The method according to claim 2, wherein the layer thickness is 0.5-2 mm.

12. (New) A method for measurement of high temperatures of a process stream, the method comprising the steps of:

providing a thermocouple arranged in a thermowell, wherein the thermowell is at least partly covered by a layer of a catalytic material being active in at least one endothermic catalyzing steam reforming reaction;

cooling the thermowell by contacting the thermowell with a process stream during the endothermic catalyzing steam reforming reaction; and

carrying out temperature measurements.